



BrightSource

January 3, 2013

Mr. Pierre Martinez
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814

California Energy Commission
DOCKETED
11 - AFC - 04
TN # 69019
JAN 03 2013

Subject: Applicant's Response to PVID Comments on Preliminary Staff Assessment
Rio Mesa Solar Electric Generating Facility (11-AFC-4)

On behalf of the Applicant (Rio Mesa Solar I, LLC and Rio Mesa II, LLC), please find the attached technical memorandum responding to the Palo Verde Irrigation District's November 1, 2012 Comment Letter. One unbound hard copy report and 12 data CDs are provide for docketing. The CDs include both the technical memorandum and revised model files.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Todd Stewart
Senior Director of Project Development



WorleyParsons

resources & energy

Infrastructure & Environment
17330 Brookhurst Street, Suite 100
Fountain Valley, CA 92708 USA
Phone: +1 310 547 6400
Facsimile: +1 310 547 6410
Toll-Free: 1 877 566 3942
www.worleyparsons.com

21 December 2012

Proj. No.: 308038-03598
File Loc.: Orange County

ELLISON, SCHNEIDER & HARRIS L.L.P.
2600 CAPITOL AVENUE, SUITE 400
SACRAMENTO, CA 95816

Attn: Mr. BRIAN BIERING

Dear Mr. Biering:

RE: TECHNICAL MEMO, BRIGHTSOURCE RESPONSE TO PVID COMMENTS

Enclosed is a Technical Memo on behalf of BrightSource Energy responding to the Palo Verde Irrigation District's November 1, 2012 comment letter from Mr. Roger Henning to the California Energy Commission. One unbound hard copy report and 12 data CDs are provided to be docketed. The CDs include both the Technical Memo and the revised Model files.

Please do not hesitate to call the undersigned at (714) 849-9602 if you have any questions.

Sincerely,
WorleyParsons.

Mark Trudell, Ph.D., PG, CHG
Principal Hydrogeologist and Project Manager

cc: Todd Stewart, BrightSource Energy



DATE	21 December 2012
TO	TECHNICAL MEMORANDUM
FROM	Mark Trudell, Ph.D., PG, CHG
COPY	Michael Rojansky
PROJECT NAME	BrightSource Rio Mesa Groundwater Resources Impact Assessment
PROJECT NO.	
SUBJECT	Response to PVID Comments on the Preliminary Staff Assessment
FILE LOC.	

TECHNICAL MEMORANDUM

Background

This technical memorandum addresses comments made by the Palo Verde Irrigation District (PVID) in the November 1, 2012 letter from Mr. Roger Henning to the California Energy Commission (CEC) regarding the CEC's *Rio Mesa Solar Electric Generating Facility Preliminary Staff Assessment Part A* (PSA) issued September 28, 2012. Information is presented in response to key comments related to the groundwater resources impact analysis included with the Application for Certification (AFC) submitted by BrightSource Energy (BSE) for the project (11-AFC-04). Mr. Henning's comments focused largely on questions of groundwater balance for the Palo Verde Mesa and Valley groundwater basins, and underlying data that was used in the development of the groundwater impact model for the Blythe Solar Power Project (BSPP) by AECOM (2010), which was subsequently modified and used for groundwater impact assessment of the Rio Mesa Solar Electric Generating Station (RMS; WorleyParsons, 2011a). The RMS groundwater model was recently updated in response to CEC comments and information included in the PSA, as discussed in the technical memorandum titled *Groundwater Resource Impact Modeling*, dated October 17, 2012. The information contained herein supplements the impact analysis included in the AFC and the October 17 memorandum (WorleyParsons, 2012).

Key PVID Comments and Responses

This memorandum discusses the corrected groundwater balance information provided by PVID and presents the results of updated computer modeling of project impacts using revised water budget information. In addition, information is presented in response to comments regarding historical water



levels in wells and the hydrogeologic setting of the site as discussed further below. Specific responses to PVID Comments 3, 4, 5, 6, 7, 8, 10 and 11 are summarized below. Further information is presented in subsequent sections of this memorandum. The site location and nearby features are shown on Figures 1, 2 and 3.

- PVID Comment 3: PVID points out that the functional hydrologic boundary between the Palo Verde Mesa Groundwater Basin (PVMGB) and the Palo Verde Valley Groundwater Basin (PVVGB) coincides with the PVID drains at the foot of the mesa, which act as a drainage divide between two different flow regimes. This observation regarding the way the groundwater flow functions in the area is fundamental to understanding potential project impacts and was described in the hydrogeologic setting description in the AFC groundwater impact analysis. This understanding was also adopted in the groundwater impact modeling conducted for the project. The basin boundaries reported by the California Department of Water Resources were also presented in the AFC for administrative purposes only. While this understanding is also implicit in the PSA, we agree it should be more prominently reflected in the groundwater resource analysis presented in the PSA. The approximate location of this boundary is shown on Figures 2 and 3.
- PVID Comment 4: PVID's comment regarding the need for drains to control rising groundwater levels from long term irrigation is consistent with information presented in BSE's comments on the PSA. These comments highlight another important characteristic of the PVVGB groundwater flow system and the drains which form the boundary between it and the PVMGB. Specifically, the groundwater flow system is characterized by surplus recharge from agricultural irrigation that has historically increased groundwater levels and has created a groundwater mound between the Colorado River and locations to the west (BS AFC Appendix 15.5D, page 4). In response, PVID constructed a network of deep drains up to approximately 20 feet deep to convey surplus groundwater to the Colorado River (BS AFC Appendix 15.5D, page 4). This is reflected in the groundwater balance (or inflow and outflow) information presented by PVID that is discussed later in this memorandum.
- PVID Comment 5: PVID correctly points out that water levels in wells located east of Hodges Drain are higher than water levels in the drain itself, and therefore would not be expected to be impacted by pumping at the RMS site. Water levels and trends in several key wells near the RMS site are also discussed in this comment. Comments regarding these water levels are addressed later in this memorandum.
- PVID Comment 6: In the Existing Groundwater Conditions Report appended to the AFC (WorleyParsons, 2011b), data regarding historical groundwater levels in wells located in the PVMGB are presented, including the wells discussed by PVID in Comment 6. The data indicate that near the RMS site, groundwater levels are generally near or slightly above the proposed Colorado River Accounting Surface. Groundwater levels in well 08S21E28P001S are approximately 8 to 10 feet lower than levels in nearby wells 08S21E28R003S and 08S21E28R002S. The source of this anomalous water level difference is not known. It does not appear to be related to pumping, and may represent a localized hydrogeologic anomaly or possibly a measurement error. As the source of this anomaly could not be



determined, data from this well was not used in contouring. If correct, groundwater elevations in this well are below the proposed Colorado River Accounting Surface.

- PVID Comment 7: In a letter from PVID to AECOM dated October 26, 2012 and attached to PVID's comments on the PSA, PVID points out a number of corrections to PVID data cited by AECOM in its analysis for the BSPP project (AECOM, 2010). The responses to comments discussed herein address these concerns in as much as they pertain to the groundwater resources impact analysis for the RMS project. These remaining corrections do not impact the impact analysis for the RMS project and are not discussed further herein.
- PVID Comment 8: This comment presents updated water balance information. Based on PVID's historical knowledge, records and responsibilities in the PVVGB and the PVMGB, this information is considered to be definitive and reliable. It is discussed in greater detail in a subsequent section of this memorandum.
- PVID Comment 10: PVID indicates that an important potential effect of the RMS project that must be evaluated is the potential for groundwater pumping to reduce the amount of flow in Hodges drain by intercepting groundwater that would otherwise discharge there. We concur with this position. An evaluation of the project's effect on flow in Hodges Drain was presented with the AFC, and this memorandum presents an updated assessment.
- PVID Comment 11: This comment is substantively addressed in the responses to PVID Comments 4, 8 and 10 contained in this memorandum.

Discussion of Water Levels and Groundwater Flow

Groundwater levels for wells discussed in PVID Comment 5 were presented and discussed in the Existing Groundwater Conditions Report (WorleyParsons, 2011b), which was included as Appendix 15.5D of the AFC for the project.

- Available water level data for wells 08S21E28P001S, 08S21E28R003S and 08S21E28R002S indicate that water levels beneath the central portion of the RMS site are lower than surface water levels in Hodges drain approximately 2 miles to the west. These wells were installed in 1976 to depths of approximately 346 to 360 feet below ground level (WorleyParsons, 2011b). The data suggest that a groundwater trough may exist beneath the site at depth in the semi-confined aquifer in the older alluvium. This feature represents an equilibrium expression in the deeper aquifer between groundwater inflow from the Mule Mountains to the west and Palo Verde Valley to the east, with a net south-southeastward flow direction back toward the Palo Verde Valley and Hodges drain to the south, as shown on Figures 4-2 and 4-5 of the referenced report, included in Attachment A. It is not the result of a cone of depression around well 08S21E28P001S as no sustained pumping has occurred at the site. In the RMS groundwater model outputs, a trough is simulated around Hodges drain, which acts as the discharge point for shallow groundwater flowing southeastward from the Mule Mountains and southwestward from the Palo Verde Valley (see Figure 3-6 of WorleyParsons 2011a, included as Attachment B). Although a groundwater trough may occur beneath the RMS site at depth in the deeper alluvial aquifer driven by downward vertical gradients, shallow groundwater beneath this part of Palo Verde



Mesa is believed to flow toward and discharge at Hodges drain as simulated in the model. This interpretation met model calibration criteria and allows conservative evaluation of the potential effect of project pumping on flow in Hodges Drain. In addition, because the model compares net drawdown by subtracting project from pre-project conditions, modeled drawdown predictions are not affected.

- Groundwater levels in wells 08S21E28P001S, 08S21E28R003S and 08S21E28R002S have remained relatively stable (within +/- 2 feet) over the period of record.
- We agree that groundwater levels in well 08S21E34R001S likely represents conditions in a localized shallow perched aquifer. A hydrograph was prepared for this well and compared to precipitation trends as presented in WorleyParsons 2011a and included in Attachment C. This hydrograph appears to show a drop in water levels that correlates with a period from 1998 to 2010 that was mostly drier than average (as shown by an overall downward trend in the cumulative departure from average precipitation). This suggests that the perched aquifer may receive episodic recharge during wet periods. The well is located near the southwest corner of the site approximately 0.25 northeast of a blue line wash shown in the United States Geological Survey (USGS) National Water Information System (NWIS) on-line mapper.
- Wells 08S21E25N001S, 08S21E24C001S and 08S21E24H001S are located east of Hodges drain and would not be expected to be affected by pumping at the site. Data for these wells were included in Appendix 15.5D of the AFC to be used for characterization of the PVVGB groundwater flow regime and for model calibration. We agree that the PSA should indicate that water levels in these wells would not be representative of conditions beneath Palo Verde Mesa.

Revised Groundwater Balance for the Palo Verde Mesa and Valley Groundwater Basins

PVID provided groundwater balance data for the PVMGB and the PVVGB that differed from information previously presented by AECOM (2010) and WorleyParsons (2011a). The water balance developed by PVID is given in Table 1 and, as stated previously, is accepted as reliable. PVID's water balance data is compared to prior assumptions made for the BSPP and RMS projects in Table 5 of PVID's letter. With exception of discharge from the river and irrigation return flow, these water budgets are within reasonably close agreement and the overall mass balances are within a reasonable margin of error for systems of this type, and in relatively close agreement with the mass balances of the BSPP and RMS groundwater flow models. The differences in the discharge from the river and irrigation return flow appear to result from a discrepancy in the river discharge data, which is at odds with the findings of PVID and the US Bureau of Reclamation (USBOR) that the river reach through PVID's territory is a net gaining reach with the return flow through Palo Verde Valley on the California side roughly equal to 5.6% of PVID's diversion (PVID Comment 11). The difference in the irrigation return flow components results from a difference in how return flow and deep percolation are accounted in the different water budgets, and the fact that canal leakage is reported to be less than previously assumed. These accounting differences do not impact the overall model mass balance.



The key component of PVID's water budget for evaluation of potential RMS project impacts is groundwater discharge to PVID's drain system. This is because the drains at the foot of the mesa form a drainage divide with which pumping on the mesa interacts.

WorleyParsons reviewed the PVID water balance and made some minor modifications, which were then used as the basis for revising the RMS groundwater impact assessment model. The groundwater balance proposed by WorleyParsons for the PVMGB and PVVGB is also given in Table 1. Differences between the RMS groundwater balance and the PVID groundwater balance are explained below.

TABLE 1. Revised Groundwater Balance, Palo Verde Mesa and Valley Basins

	PVID's Comment Letter 11/01/2012	WorleyParsons Revised RMS Water Balance
Budget Component AFY		
Recharge (inflow)		
Precipitation mountain front	5,000	5,300
Precipitation valley floor	0	0
Underflow Chuckwalla Valley	1,000	1,000
Underflow Parker Valley GWB	0	0
Discharge from River	0	0
Canal leakage	30,000	30,000
Return flow irrigation PV Valley	348,297	346,294
Return flow PV Mesa	4,333	4,683
Public treatment return PV Valley	750	750
Bedrock	0	
Total inflow	389,380	388,027
Discharge (Outflow)		
Underflow PVV & Cibola Valley GWB	0	0
Groundwater extraction	-11,694	-10,019
Discharge to River	-50,040	-50,040
Transpiration (native veg)	-4,250	-4,250
Discharge to drains	-323,718	-323,718
Total Outflow	389,702	-388,027
Budget Balance (inflow- outflow)	-322	0

Notes:

1. AFY = acre-feet/year
2. The above water balance does not include evaporation, operational spill, rainfall or storm water runoff into drains because these are surface water, and not groundwater components.

- Mountain Front Recharge from Precipitation. PVID's value of 5,000 AFY reflects AECOM's estimate for the BSPP model, however this amount does not include recharge from the Palo Verde or Mule Mountains in the southern part of the basin, as explained in detail by



WorleyParsons in the existing Groundwater Conditions report (WorleyParsons 2011b) and subsequently adjusted as explained in the WorleyParsons technical memorandum of August 14, 2012 (WorleyParsons, 2012). In our opinion, this value is more representative of Mountain Front Recharge for all of the mountain ranges in the Palo Verde Mesa Basin.

- Return flow from irrigation of agricultural land and other deep percolation recharge sources on the mesa were re-evaluated in light of PVID comments, and the revised flows are summarized in Table 2.
- Return flow from irrigation in the Palo Verde Valley was adjusted to achieve a balanced water budget.

Table 2. Pumping and Deep Percolation Groundwater Balance Components, Palo Verde Mesa

Deep Percolation (AFY)	
3,495	Deep Percolation from irrigation of 1,515 acres with Colorado River Water (PVID Comment 8e)
250	Deep Percolation from Mesa Verde subdivision septic systems (1,200 units, estimated based on PVID Comment 8f)
100	Deep percolation from airport POTW evaporation/infiltration ponds (estimated based on PVID Comment 8f)
804	Deep Percolation (25% leaching requirement) from groundwater irrigated fields (643 acres)
34	Deep Percolation (5% leaching requirement) from 97 acre golf course
4,683	Total Recharge
Pumping (AFY)	
3,300	Blythe Energy Project
3,215	Irrigation of 643 acres using well water (PVID Comment 8e)
1,450	Supply Well No. 8 (PVID Comment 8g, Palo Verde Mesa portion of public supply pumping, new supply well for Mesa Verde Water Supply Project)
679	Irrigation of 97 acre golf course (PVID Comment 8e)
838	Additional pumping of water for soil flushing at Ag land and golf course (PVID Comment 8e)
260	Palo Verde College Well (PVID Comment 8g, Palo Verde Mesa portion of public supply pumping, data from City of Blythe)
230	Mesa Ranch Well #3 (PVID Comment 8g, Palo Verde Mesa portion of public supply pumping, data from City of Blythe)
47	Airport Well #7 (PVID Comment 8g, Palo Verde Mesa portion of public supply pumping, data from City of Blythe)
10,019	Total Pumping
5,336	Total Net Pumpage (AFY)



Model Revisions

To accommodate the change in water balance in line with PVID suggestions, the groundwater impact model developed for the RMS project (which was based on the BSPP AECOM Model) was revised. The following summarizes the changes made in the Revised RMS model:

1. Pumping and deep percolation recharge on the Palo Verde Mesa, as described above in the revised RMS water balance, was added to the model. Net agricultural (Ag) pumping or recharge, and other institutional and commercial pumping and deep percolation recharge were added to model, as summarized in Table 3. The location and quantities of these flows are shown in Figure 2. These flows were introduced to the model as steady-state well boundary cells. The net pumping that resulted from this revision reduced heads in the northern part of the Palo Verde Mesa, which required additional adjustment (lowering) of layer 1 bottom elevations in the mountain front areas to avoid dry cells.
2. Inflow from Parker Valley at the northern end of the Palo Verde Valley Basin was set to zero.
3. Areal recharge on the valley floor (from percolation irrigation water) was calibrated to match PVID-measured drain discharge, which was determined to be the key component of the PVVGB water budget that required accurate simulation in the model.

Table 3. Model Groundwater Pumping and Recharge on the Palo Verde Mesa

Type	Name	AFY
Pumping	Supply Well No. 8	1,450
Pumping	BEP 1	3,300
Pumping	Golf Course	679
Pumping	Mesa Ranch	230
Pumping	Palo Verde College	260
Pumping	Net Ag 3	1,072
Pumping	Net Ag 4	1,072
Pumping	Net Ag 5	1,072
TOTAL PUMPING		9,135
Recharge	Airport WWTP	100
Recharge	Mesa Verde Septic	250
Recharge	Net Ag 1	1,165
Recharge	Net Ag 2	1,165
Recharge	Net Ag 6	1,165
TOTAL RECHARGE		3,845

Note: Refer to Figure 2 for locations of pumping and recharge



In addition to water balance revisions, the RMS groundwater impact model was also modified to accommodate quarterly pumping stress periods to more accurately reflect RMS project pumping patterns during the construction period. That is, variable stress periods were used through the construction and start-up phases, such that the first and second stress periods total 2.75 years (2011 to Q3 2013) at rate 0 AFY (i.e., steady state, non-pumping), Stress Period 3 is 0.25 years (Q4 2013) at 400 AFY construction pumping, Stress Periods 4 and 5 are 1 year each (2014 and 2015) at 400 AFY (construction pumping), Stress Period 6 is 0.25 yr (Q1 2016) at 573 AFY (400 AFY construction pumping plus 173 AFY operational pumping), Stress Period 7 is 0.75 yr (Q2-Q4 2016) at 173 AFY (operational pumping), Stress Periods 7 to 31 (2017-2040) at 173 AFY (operational pumping), and finally Stress Periods 32 to 33 (2041-2043) at 0 AFY (non-pumping, recovery).

Revised Model Results

Figure 3 shows the project related drawdown predicted by the Revised RMS model. The model results show that project-related drawdown impacts will be less than significant. Consistent with previous model results provided to the CEC, drawdown decreases rapidly away from the pumping wells in the Revised RMS model and is similar in extent to previous model results. The revised model predicts that the 0.1 ft drawdown contour to the east of the RMS wells will not extend from Palo Verde Mesa Groundwater Basin into the Palo Verde Valley Groundwater Basin.

The maximum predicted drawdown will occur near the pumping wells for the project at the end of construction pumping when operational pumping also start, in first quarter (Q1) 2016, and is predicted to be approximately 9.6 feet. After construction pumping finishes, operational pumping decreases to 173 AFY and groundwater levels near the pumping wells will recover while the overall drawdown cone continues to expand. The maximum lateral extent of predicted drawdown will occur at the end of project operation. At the end of project pumping, the maximum predicted drawdown near the project wells is 3.8 feet in the Revised RMS model. Drawdown is predicted to be less than 1 foot at distances greater than 0.4 mile from the pumping wells at the end of project pumping. Measurable drawdown is not predicted to extend westward beyond the site boundaries. Drawdown beneath the undeveloped land immediately north of the site is predicted to be approximately 2 feet near the site boundary and decreasing rapidly northward to 0.3 feet or less at a distance of about 1 mile from the site.

Figure 4 compares the groundwater level versus time at simulated monitoring well MW-1 in the cell adjacent to the pumping centroid. The drawdown response at MW-1 is very similar to previous model simulations. The maximum predicted drawdown at simulated monitoring well MW-4, located near the PVID drain at the edge of the mesa, is 0.14 feet in the Revised RMS model, similar to previous RMS models.

Based on the above modeling analysis of potential groundwater drawdown by the proposed project, groundwater wells on property adjacent to the proposed project are not expected to experience measurable drawdown. The maximum predicted drawdown at an off site well is 0.1 foot at an inactive well located approximately 2 miles north of the site. As such, off-site wells will not be significantly impacted by the project pumping.

Calibration statistics for the Revised RMS model are summarized in Table 4, and meet all applicable calibration goals, including the following:



- A residual standard deviation divided by range of less than 10 percent;
- An absolute residual mean divided by range of less than 10 percent; and
- A residual mean divided by range in target heads of less than 5 percent.

Table 4. Calibration Statistics

Model Version	Residual Mean	Residual Standard Deviation	Absolute Residual Mean	RMS Error	Minimum Residual	Maximum Residual	Range in Target Heads	Residual Standard Deviation/Range (<10%)	Absolute Residual Mean/Range (<10%)	Residual Mean/Range (<5%)
Revised Model	0.22	3.86	3.12	3.87	-9.16	9.51	55.91	6.9%	5.6%	0.4%

A further calibration goal for the Revised RMS model was to match the drain flow in the PVID drains, as identified in the Water Balance (Table 1). Drain flow in the calibrated model (as calculated for the drain cell boundaries representing the PVID drains) was 323,902 AFY, compared to the water balance value of 323,718 AFY, a difference of less than one-tenth of one per cent.

Cumulative Drain Depletion

The Revised RMS model was used to predict the cumulative depletion in PVID drain flows over the life of the RMS project. At the end of project pumping in 2040, the cumulative depletion in PVID drain flow is calculated to be 1,745 Acre-Feet. The average annual depletion during project construction and operation will be approximately 62 AFY. This amount of depletion would not be measurable or observable in Hodges Drain, and is approximately one thousand times lower than the error in PVID's drain return flow measurements.

REFERENCES:

- AECOM, 2010. Blythe Solar Power Project – Numerical Groundwater Flow Model of the Palo Verde Valley and Palo Verde Mesa, Prepared for Palo Verde Solar I, LLC, October.
- WorleyParsons, 2011a. Groundwater Impact Assessment Report, Rio Mesa Solar Electric Generating Facility Riverside County, California, September.
- WorleyParsons, 2011b. Assessment of Existing Groundwater Conditions Report, Rio Mesa Solar Electric Generating Facility Riverside County, California, September.
- WorleyParsons, 2012. Updated Groundwater Resource Impact Modeling, October 17, 2012.

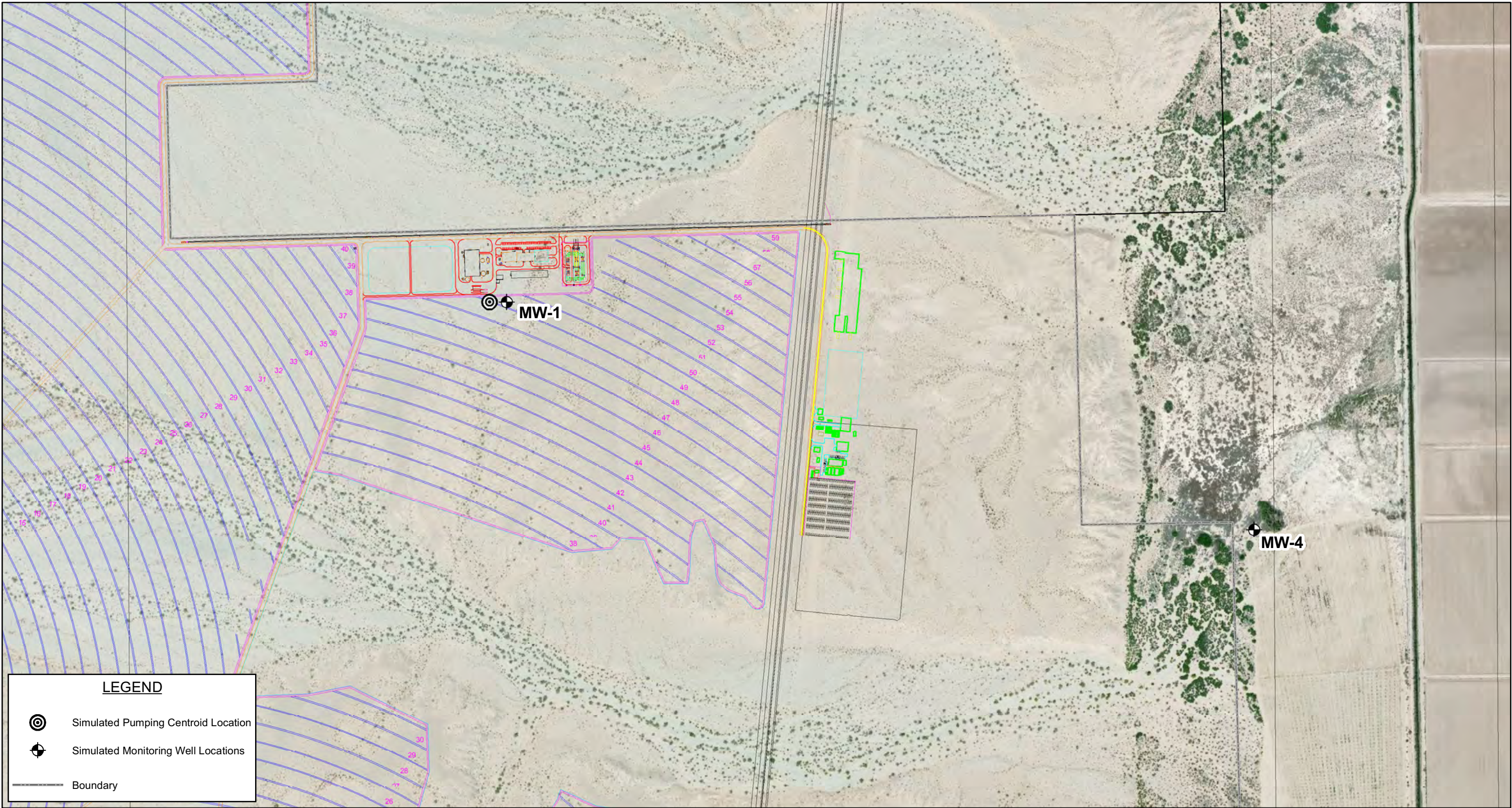


WorleyParsons

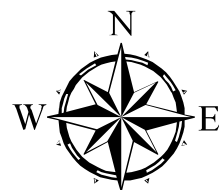
resources & energy

EcoNomics™

Figures



SOURCE: Image courtesy of USGS © 2012 Microsoft Corporation . Bechtel Power Corp. 25755-000-C2-0000-00001.dwg, September 2012



0 2,000
Feet

RIO MESA SOLAR
POWER PROJECT



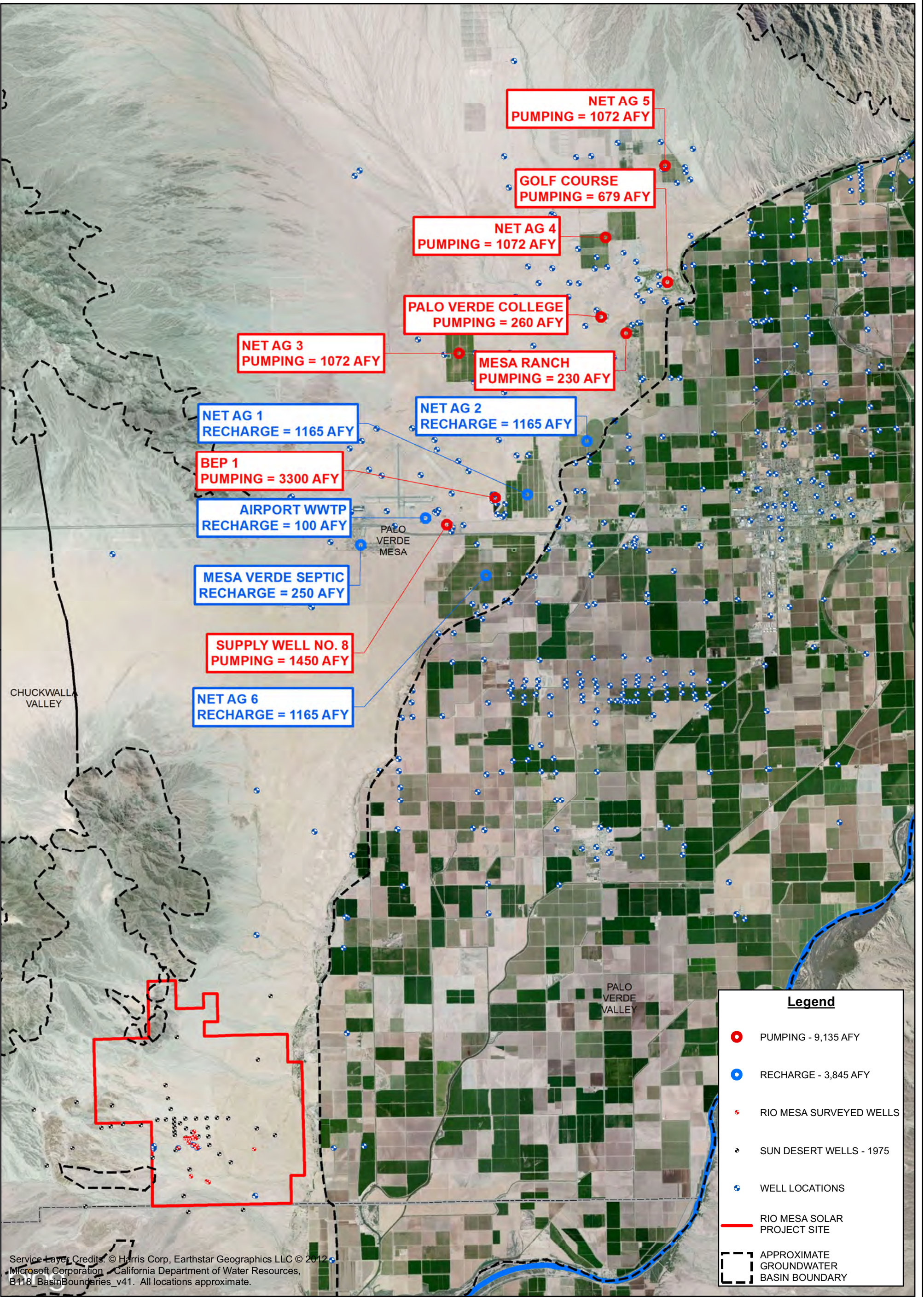
WorleyParsons
resources & energy

SITE MAP

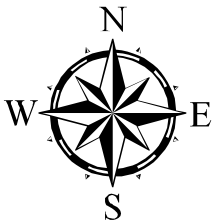
SWL MT 11/2012

308038-03598

1



Service Layer Credits: © Harris Corp, Earthstar Geographics LLC © 2012
Microsoft Corporation, California Department of Water Resources,
B118_BasinBoundaries_v41. All locations approximate.



RIO MESA SOLAR
POWER PROJECT



WorleyParsons
resources & energy

GROUNDWATER PUMPING AND RECHARGE
ON THE PALO VERDE MESA

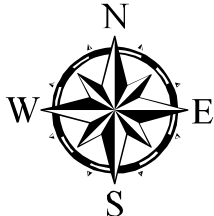
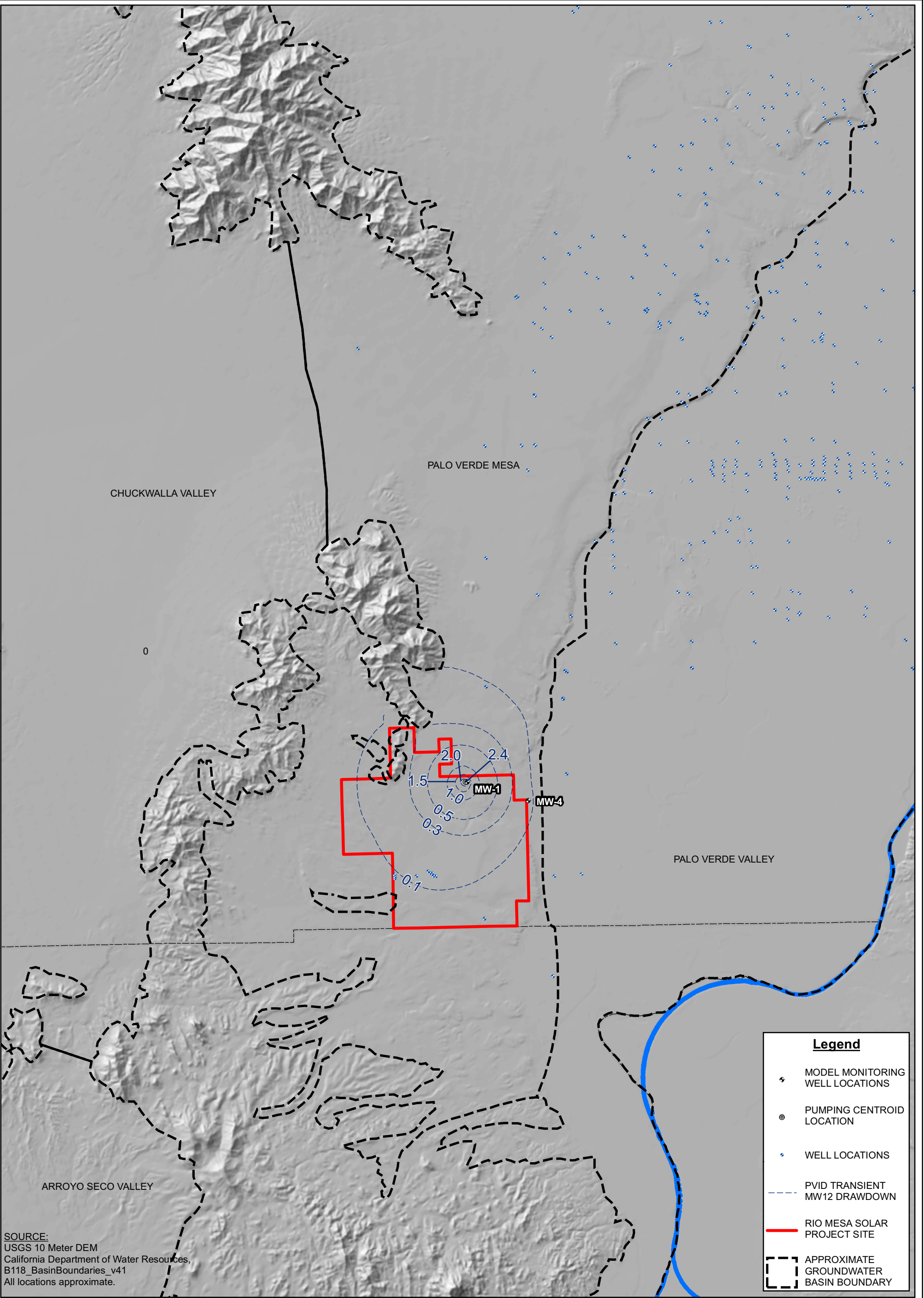
SWL


MT

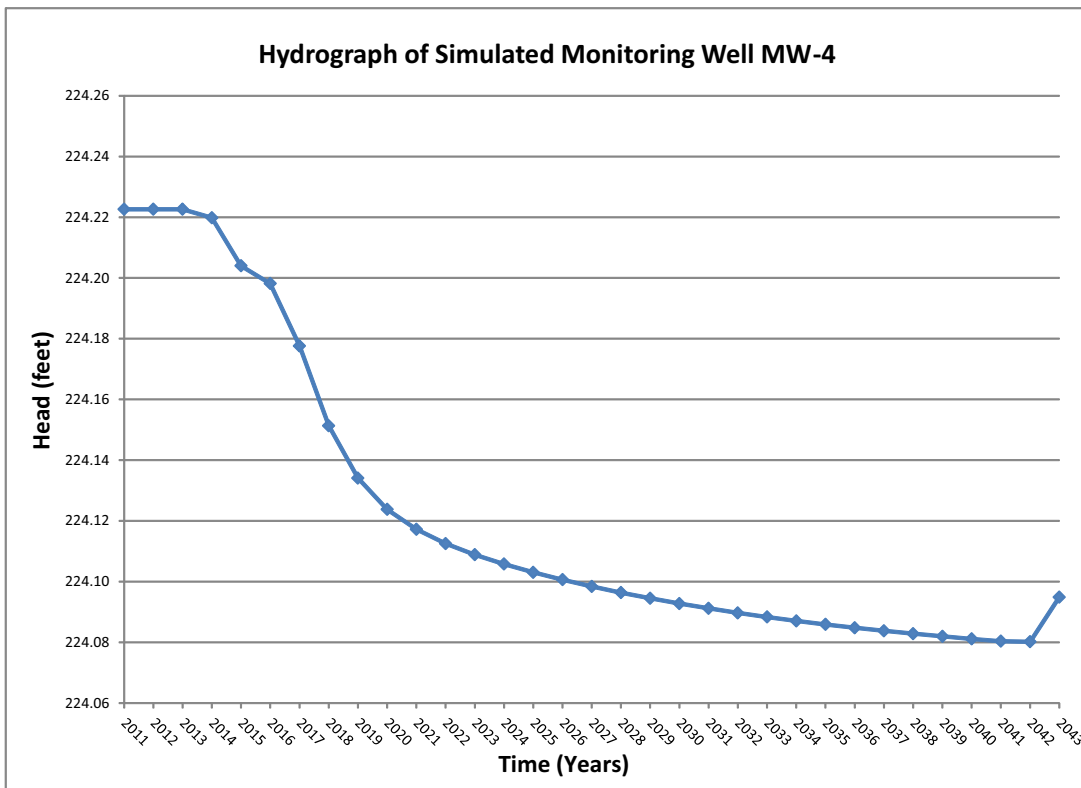
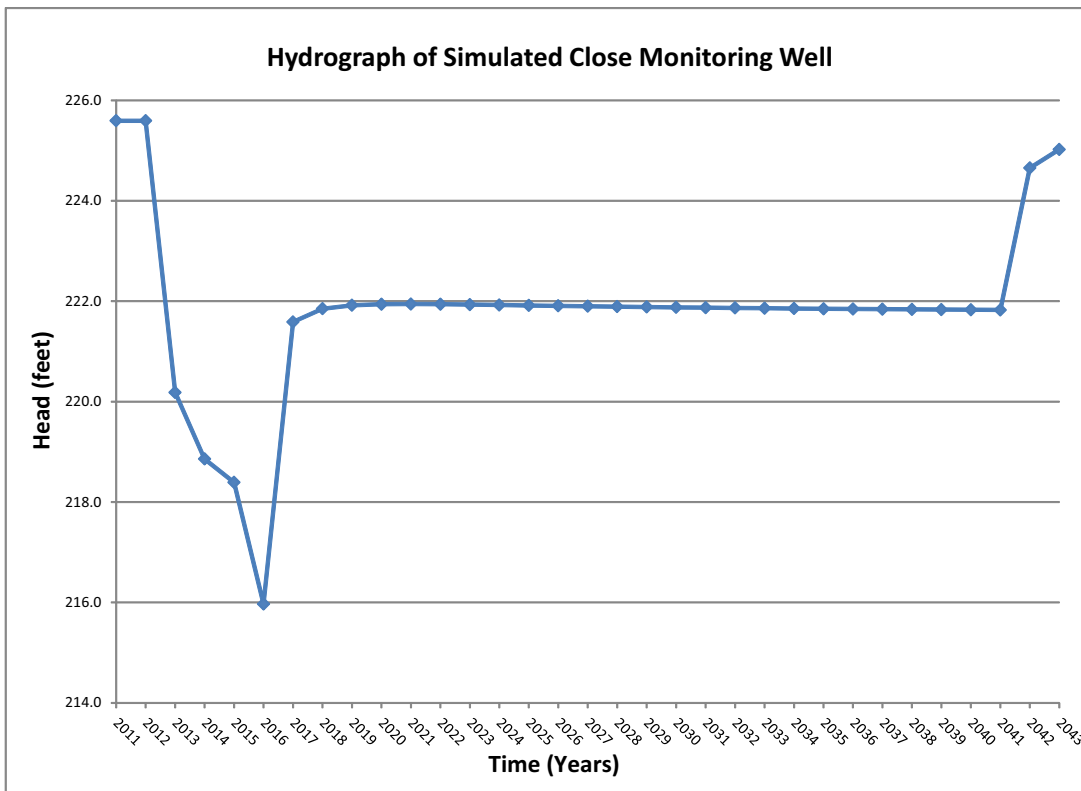
11/2012

308038-03598

2



RIO MESA SOLAR POWER PROJECT		 WorleyParsons resources & energy		
DRAWDOWN CONTOUR MAP REVISED RMS IMPACT MODEL		SWL	MT	11/2012
		308038-03598		3



RIO MESA SOLAR
POWER PROJECT



WorleyParsons
resources & energy

HYDROGRAPHS OF SIMULATED CLOSE MONITORING WELL
AND MONITORING WELL MW-4

SWL

MT

11/2012

308038-03598

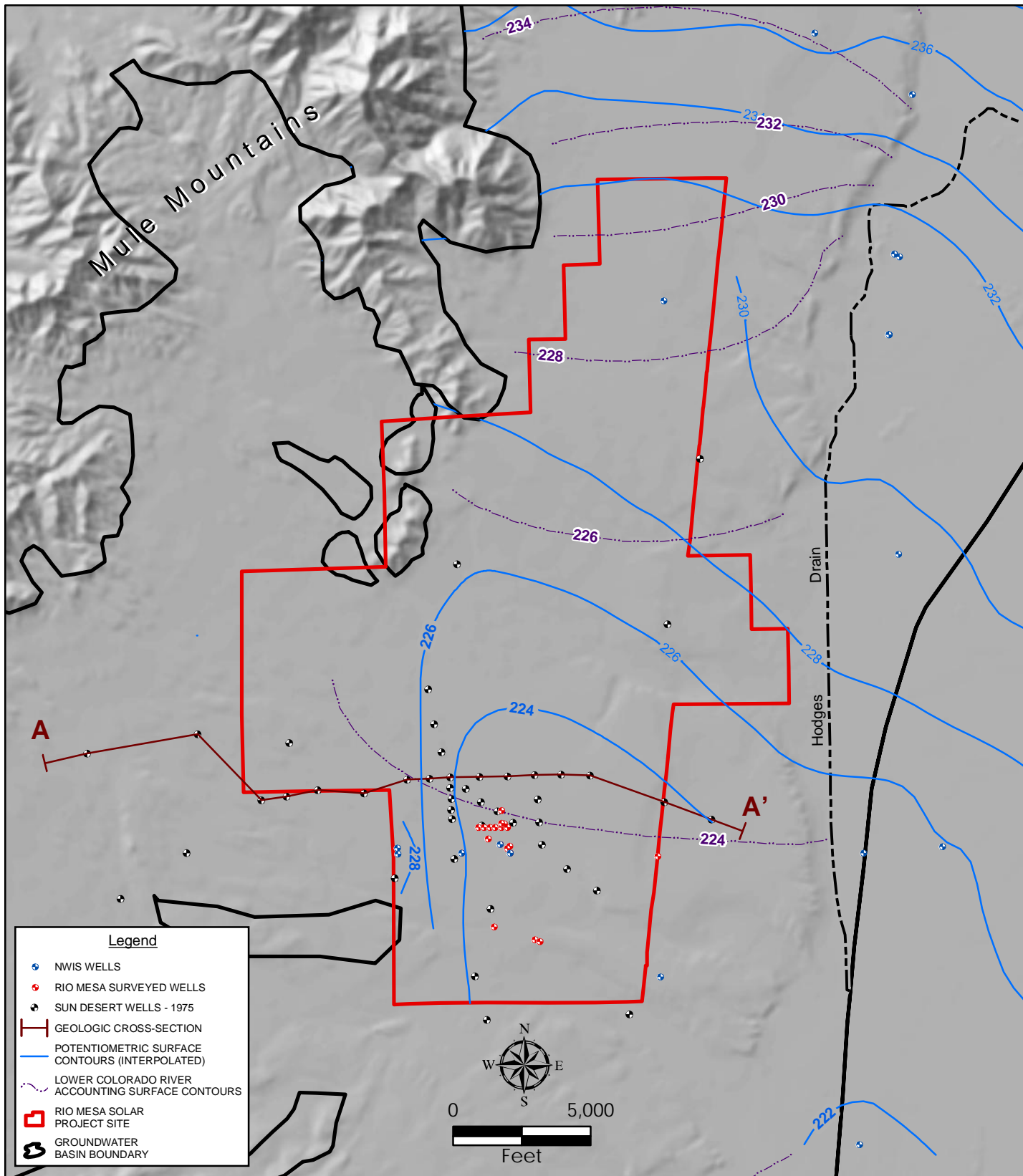
4



WorleyParsons
resources & energy

EcoNomics™

Attachment A



RIO MESA SOLAR POWER PROJECT



WorleyParsons
resources & energy

SOURCE:
USGS 10 Meter DEM. USGS Arizona Water Science Center
California Department of Water Resources,
B118_v3_BasinBoundaries_NAD83_unprojected
California Hydrography-Hodges Drain,
NOTES:
Potentiometric surface lines interpolated using
historical well log data from NWIS and Rio Mesa Well
log data from URS

GROUNDWATER ELEVATIONS AND ACCOUNTING SURFACE SITE VICINITY

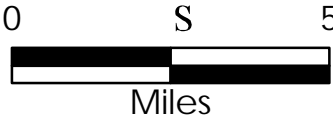
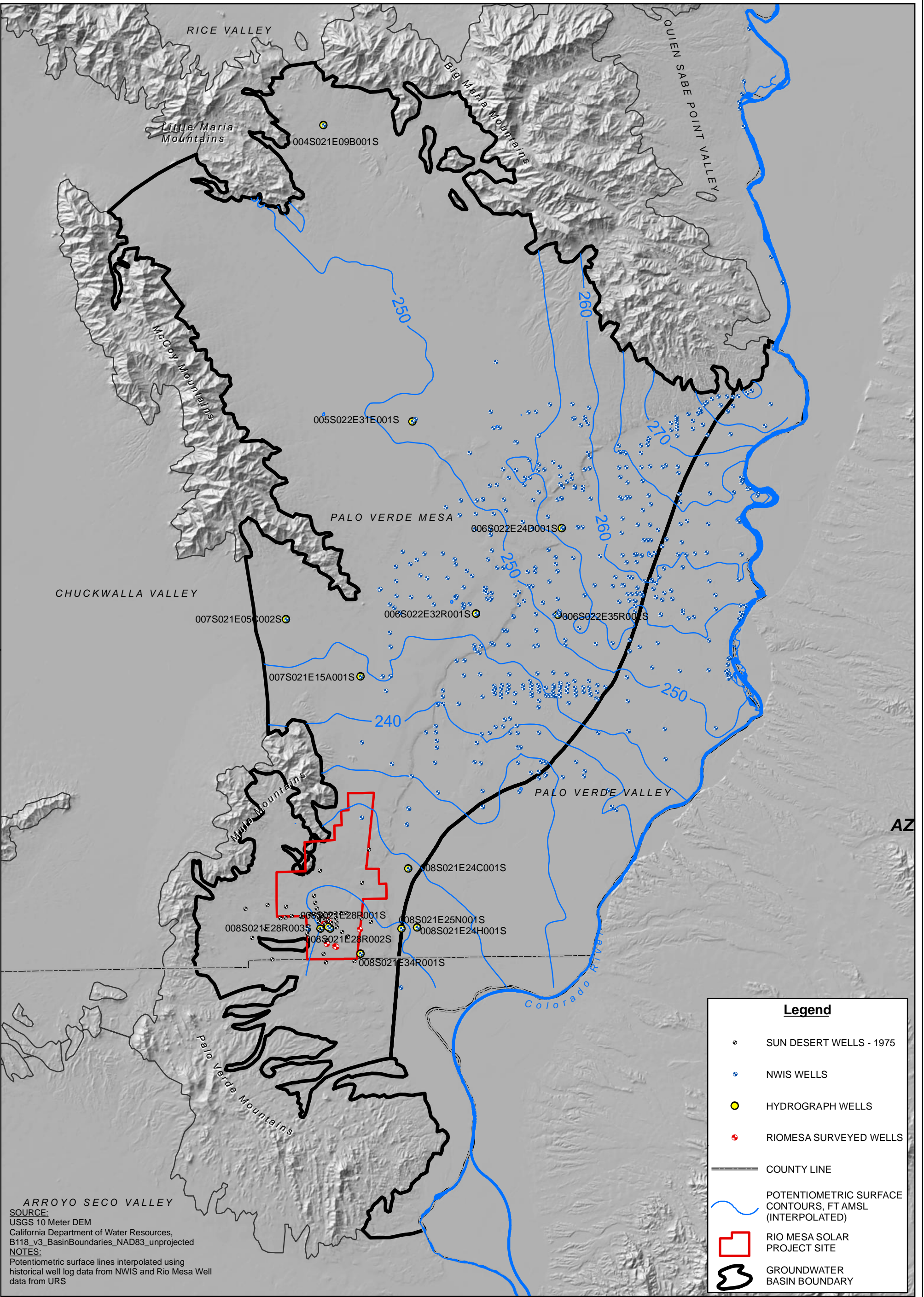
SWL

MT

9/2011

308038-03598

4-2



RIO MESA SOLAR
POWER PROJECT



WorleyParsons
resources & energy

**GROUNDWATER SURFACE ELEVATIONS
PALO VERDE MESA AND VALLEY GROUNDWATER BASINS**

SWL

MT

9/2011

308038-03598

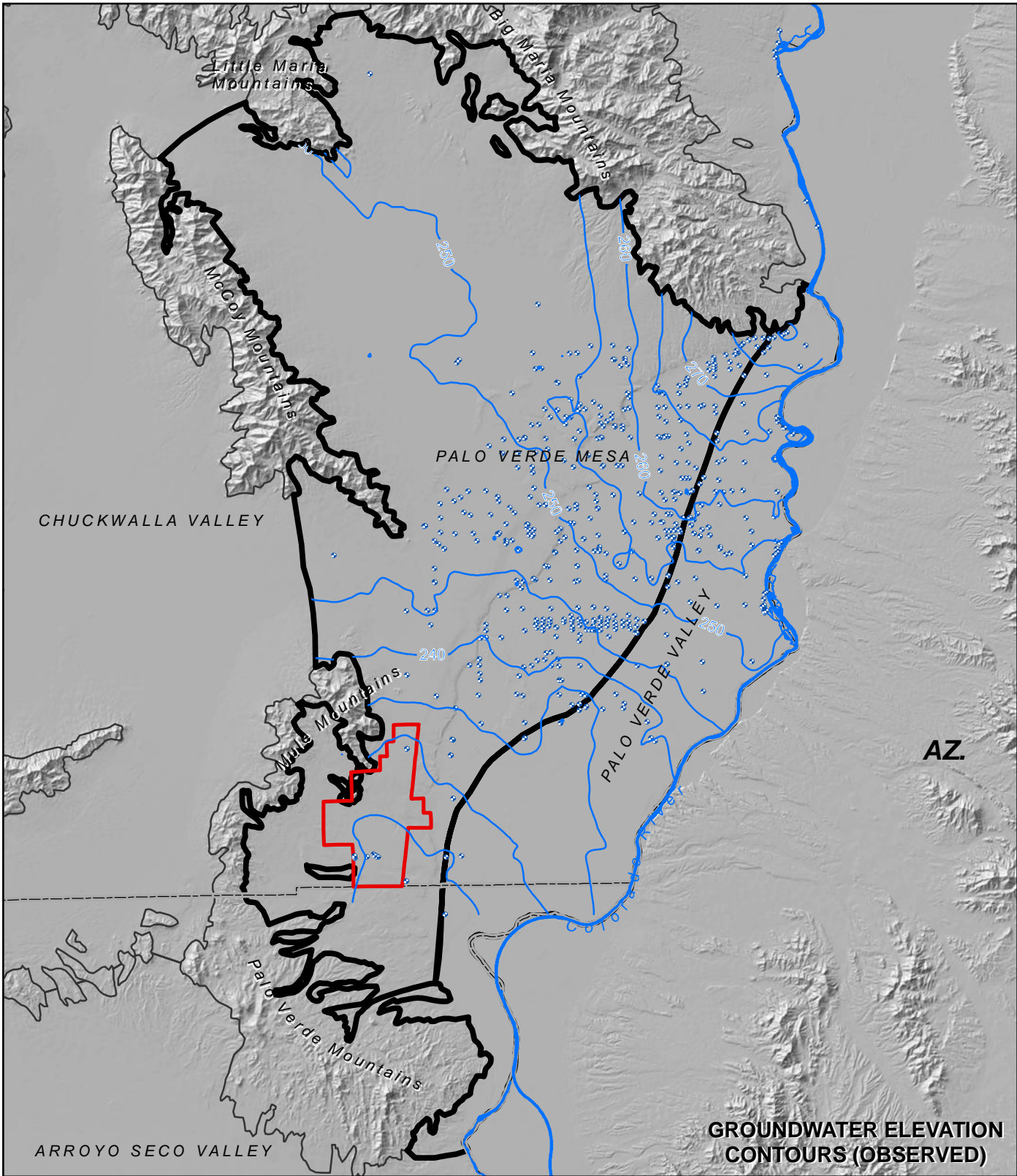


WorleyParsons

resources & energy

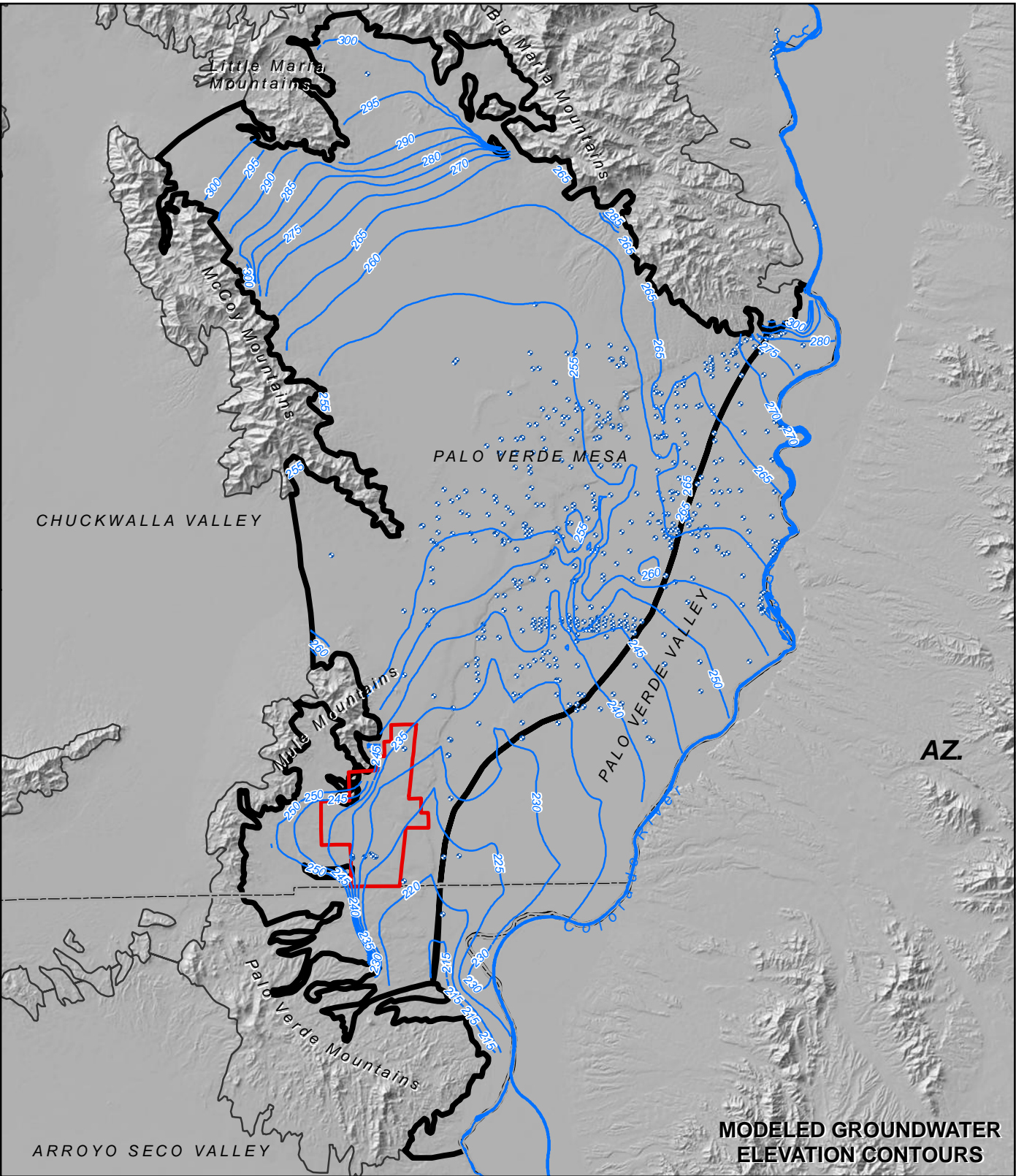
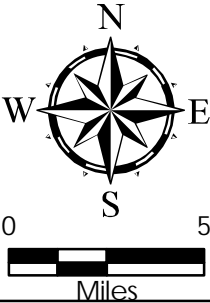
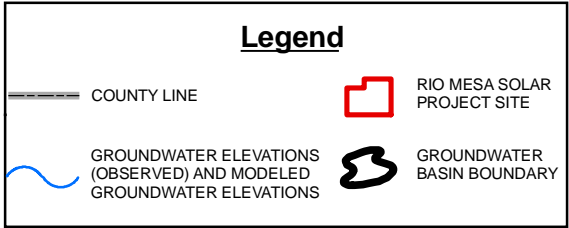
EcoNomics™

Attachment B



SOURCE:
USGS 10 Meter DEM
California Department of Water Resources,
B118_v3_BasinBoundaries_NAD83_unprojected

NOTES:
Observed groundwater elevation contours interpolated
using historical well log data from NWIS and Rio Mesa
Well data from URS. Modeled contours interpolated in
Groundwater Vistas. Elevations in ft amsl



RIO MESA SOLAR
POWER PROJECT



WorleyParsons
resources & energy

**GROUNDWATER ELEVATION CONTOURS (OBSERVED)
AND MODELED GROUNDWATER ELEVATION CONTOURS**

SWL

MT

9/2011

308038-03598

3-6



WorleyParsons

resources & energy

EcoNomics™

Attachment C

